

REMARKS/ARGUMENTS

Claims 1-32 remain in the application. Claims 1, 6, 12, 15-18, 20, 21, 25-27, 29, 30, 32 are currently amended. Claim 2 is currently cancelled. Claims 33 and 34 are newly presented.

Claim Objections:

Claims 15, 17 and 18 were objected to because of informalities. Claims 15, 17 and 18 are currently amended to correct the informalities.

Claim Rejections Under 35 USC § 112:

Claims 20-32 were rejected under 35 UCS § 112, second paragraph, as being indefinite. Claims 22-24, 28, and 30-32 were rejected as depending from defective base claims 20 and 27.

Claims 20, 21, 25-27 and 29 are currently amended substantially in accord with the Examiner's suggestions to overcome the rejections. Claims 20, 21, 25-27 and 29 are now believed to be allowable. The rejection as to claims 22-24, 28, and 30-32 are believed to be overcome by the current amendment to base claims 20 and 27.

Claim Rejections Under 35 USC § 102:

Claims 1-4, 6-14 and 16-19 were rejected under 35 USC § 102(e) as being anticipated by US Patent 6,147,876 to Yamaguchi et al.

Base claims 1, 6, 12 and 16 are currently amended to incorporate subject matter that the Examiner has found to be allowable, as recited in paragraph 11 on page 20 of the present Office Action. Accordingly, claim 1 is currently amended to recite that a plurality of surface mount solder pads formed on the first surface, and a plurality of electrical contacts formed on the second surface, with the plurality of surface mount solder pads formed on the first surface being fewer than the plurality of electrical contacts formed on the second surface.

As the Examiner admits in paragraph 12 of the present Office Action, and the Applicant agrees, the references fail to disclose or suggest the contact areas for the replacement device being fewer than the contact areas provided on the circuit board for the replaced device.

Accordingly, claim 1 is amended to limit the number of surface mount solder pads formed on the first surface to being fewer than the number of electrical contacts formed on the second surface.

For each of the above reasons, claim 1 is now believed to be allowable.

Claim 2 is presently cancelled, whereby the rejection is made moot.

Claims 3-4 are allowable at least as depending from now allowable base claim 1.

Base claim 6 is currently amended to recite first and second quantities of interconnecting means being positioned on a first surface of the body means, with the second quantity of input/output leads formed on the bottom layer of the printed circuit board being greater than the first quantity of input/output leads for electrically interconnecting to a first surface mounted device.

Thus, though claim 6 is different in scope from allowable claim 1, the above arguments as to claim 1 are sufficiently applicable to claim 6 as to make repetition unnecessary. Thus, for each of the above reasons claim 6 is also believed to be allowable.

Claims 7-11 are allowable at least as depending from now allowable base claim 6.

Base claim 12 is currently amended to recite a first pattern of solder pads formed on the top layer of the printed circuit board, the first pattern being structured with a first quantity of solder pads for receiving a first surface mount device; and a second pattern of electrical contacts formed on the bottom layer of the printed circuit board, the second pattern being structured with a second quantity of solder pads arranged to simulate a second surface mount device, the second quantity of solder pads being greater than the first quantity of solder pads.

As the Examiner admits in paragraph 12 of the present Office Action, and the Applicant agrees, the references fail to disclose or suggest the contact areas for the replacement device being fewer than the contact areas provided on the circuit board for the replaced device.

Accordingly, claim 12 is amended to limit the number of surface mount solder pads formed on the top layer to being fewer than the number of electrical contacts formed on the bottom layer.

Thus, though claim 12 is different in scope from claim 1, the above arguments as to claim 1 are sufficiently applicable to claim 12 as to make repetition unnecessary. Thus, for each of the above reasons claim 12 is also believed to be allowable.

Claims 13 and 14 are allowable at least as depending from now allowable base claim 12.

Base claim 16 is currently amended to recite a first quantity of interconnecting means being positioned on a first surface of the body means for electrically interconnecting to a first surface mounted device; and a second different quantity of interconnecting means being positioned on a second surface of the body means for electrically interconnecting to a printed circuit board structured to receive a second surface mounted device.

As the Examiner admits in paragraph 12 of the present Office Action, and the Applicant agrees, the references fail to disclose or suggest the contact areas for the replacement device being fewer than the contact areas provided on the circuit board for the replaced device.

Accordingly, claim 16 is amended to limit the number of interconnecting means positioned on the first surface to being different than the number of interconnecting means positioned on the second surface. The Applicant discovered that the Yamaguchi reference not only fails to disclose or suggest the number of interconnecting means on the first surface being fewer than the number of interconnecting means on the second surface, the Yamaguchi reference also fails to disclose or suggest the number of interconnecting means being different between the first and second surfaces. Rather, Yamaguchi discloses and suggests a multi-chip module that merely couples the of input/output leads of a plurality of devices directly through to the parent or “target” circuit board. Thus, in direct contrast to the different number of contacts on the top and bottom surfaces of the present invention, as recited in claim 16, Yamaguchi inherently teaches only an identical number of contacts on both the top and bottom surfaces.

Thus, for each of the above reasons claim 16 is believed to be allowable.

Claims 17-19 are allowable at least as depending from now allowable base claim 16.

Claim Rejections Under 35 USC § 103:

Claims 5 and 20-31 were rejected under 35 USC § 103(a) as being anticipated by US Patent 6,147,876 to Yamaguchi et al. in view of US Patent 5,796,591 to Dalal et al.

Claim 5 is allowable at least as depending from now allowable claim 1.

Claim 20 is different in scope from claim 16. However, the above arguments as to claim 16 are sufficiently applicable to claim 20 as to make repetition unnecessary. Thus, in contrast to Yamaguchi, claim 20 is also believed to be allowable as reciting different first and second electrical interconnecting means structured for coupling to different quantities of input/output leads between the surface mounted device and the printed circuit board.

Furthermore, the Dalal et al. reference fails to provide the deficiencies of the Yamaguchi reference. Dalal fails to disclose or suggest having different first and second electrical interconnecting means structured for coupling to different quantities of input/output leads between the surface mounted device and the printed circuit board, as presently recited in claim 20. Rather, in contrast to the invention presently recited in claim 20, Dalal merely teaches a direct chip attach circuit card that provides direct chip attach to a circuit card using a different solder interconnection scheme. Column 4, lines 25-49. Dalal thus teaches a circuit card that inherently provides an identical number of input/output leads between the surface mounted device and the printed circuit board. Therefore, Dalal fails to disclose or suggest different first and second electrical interconnecting means structured for coupling to different quantities of input/output leads between the surface mounted device and the printed circuit board, as presently recited in claim 20.

For at least the above reasons, claim 20 is now believed to be allowable.

Claims 21-26 are allowable at least as depending from now allowable base claim 20.

Claim 27 is different in scope from allowable claim 20. However, the above arguments as to claim 20 are sufficiently applicable to claim 27 as to make repetition unnecessary. Thus, claim 27 is also believed to be allowable as reciting fewer corresponding contact areas of the foot print on the top layer of the adapter printed circuit board being provided for the replacement surface mount device than the contact areas provided on the parent printed circuit board for a replaced device.

Claim 15 was rejected under 35 USC § 103(a) as being anticipated by US Patent 6,147,876 to Yamaguchi et al. in view of US Patent 5,941,447 to Chu et al. and US Patent 6,395,996 to Tsai et al.

Claim 15 is allowable at least as depending from now allowable base claim 12.

Furthermore, base claim 12 is allowable over the combination of Yamaguchi, Chu and Tsai. As discussed herein, and admitted by the Examiner, Yamaguchi fails to disclose or suggest limiting the number of surface mount solder pads formed on the top layer to being fewer than the number of electrical contacts formed on the bottom layer, as presently recited in base claim 12.

Chu and Tsai both fail to provide the deficiencies of Yamaguchi. Chu and Tsai both fail to disclose or suggest limiting the number of surface mount solder pads formed on the top layer

Serial No. 10/052,715
Amdt. dated March 29, 2004
Reply to Office action of January 28, 2004

to being fewer than the number of electrical contacts formed on the bottom layer, as presently recited in base claim 12.

Chu merely teaches a processor module having a cache of SRAM chips mounted on both a back and a front surface. See, Abstract. Chu thus teaches a processor module that inherently provides an identical number of input/output leads between the SRAM chips and the printed circuit board. Therefore, Chu fails to disclose or suggest different first and second electrical interconnecting means structured for coupling to different quantities of input/output leads between the surface mounted device and the printed circuit board, as presently recited in base claim 12.

Tsai merely teaches a multi-layered substrate having built-in capacitors. See, Abstract. Tsai thus teaches a substrate that inherently provides an identical number of input/output leads between the flip-chips on the substrate and the target parent circuit board. Therefore, Tsai fails to disclose or suggest different first and second electrical interconnecting means structured for coupling to different quantities of input/output leads between the surface mounted device and the printed circuit board, as presently recited in base claim 12.

For at least the above reasons, claim 12 is now believed to be allowable.

Claim 15 is believed to be allowable at least as depending from allowable base claim 12.

Allowable Subject Matter:

The Examiner is thanked for acknowledging that claim 32 contains allowable subject matter and noticing that claim 32 would be allowable if rewritten in independent form. Claim 32 is presently amended to read in independent form, including all the limitation of base claim 27 and intervening claims 30 and 31.

The Applicants have also incorporated the allowable subject matter of claim 32 into all the base claims 1, 6, 12, 20 and 27 in different scope. Claims 1, 6, 12, 20 and 27 are now believed to be allowable and claims depending from respective allowable base claims 1, 6, 12, 20 and 27 are believed to be allowable.

Newly Presented Claims

Newly presented claims 33 and 34 are allowable at least as depending respectively from now allowable claims 16 and 20.

Serial No. 10/052,715
Amdt. dated March 29, 2004
Reply to Office action of January 28, 2004

Furthermore, although different in scope from allowable claim 32, newly presented claims 33 and 34 both recite the subject matter that the Examiner found allowable in claim 32.

Accordingly, claim 33 recites the second quantity of interconnecting means in claim 16 being greater than the first quantity of interconnecting means.

Claim 34 recites providing a first quantity of contact areas for the first quantity of input/output leads of the first surface mounted device in claim 20; and providing a second quantity of contact areas for the second quantity of input/output leads that is greater than the first quantity of contact areas.

For at least the above reasons, claims 33 and 34 are both allowable independently of respective allowable base claims 16 and 20.

The claims being in condition for allowance, issue of a Notice of Allowance is respectfully requested.

If the Examiner has questions or wishes to discuss any aspect of the case, the Examiner is encouraged to contact the undersigned at the telephone number given below.

Respectfully submitted,

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